

CLAIMS:

1. An illumination system (300) comprising a light guide (302) having an entrance face, an exit face and an aperture in which a light source (301) can be arranged, the system being characterized in that it comprises:
- 5 a light reflective structure (307) arranged in proximity to the light guide (302) entrance face, the light reflective structure (307) being arranged with an aperture in which the light source (301) can be fitted; and
- a first light refractive structure (306) arranged in proximity to the light guide (302) exit face, in which first light refractive structure (306):
- 10 at least a subset of light beams of a first angular interval (303) with respect to the optical axis (304) of the system (300) is refracted to illuminate the light guide (302) exit face, and
- at least a subset of light beams of a second angular interval (305) with respect to said optical axis (304) is reflected to be recycled in the light guide (302).
- 15 2. The illumination system (300) according to claim 1, further comprising:
- a light diffusing element (408) arranged between the light reflective structure (407) and the first light refractive structure (406) to alter the angle of light beams incident on said diffusing element (408) with respect to the optical axis (404).
- 20 3. The illumination system (300, 400) according to claim 1 or 2, further comprising:
- a reflective polarizer arranged (509) in proximity to the light guide (502) exit face to transmit light beams of a first polarization mode and reflect light beams of a second polarization mode.
- 25 4. The illumination system (300, 400) according to any one of claim 1-3, further comprising:

a polarization converting element (510) arranged in the light guide (502) to alter the polarization mode of light beams incident on said polarization converting element (510).

5 5. The illumination system (300, 400, 500) according to any one of the preceding claims, further comprising:

 a second light refracting structure (611) arranged in proximity to the light guide (602) entrance face to increase the angle of light beams refracted in said second light refracting structure (611) with respect to the optical axis (604).

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6. The illumination system (300, 400, 500, 600) according to any one of the preceding claims, the light guide (702) having a plurality of apertures, wherein a light source (701', 701'', 701''') can be arranged in each aperture and a dichroic coating (713', 713'', 713''') adapted to the spectral properties of the respective light source (701', 701'', 701''') is
15 arranged in each aperture.

7. The illumination system (300) according to any one of the preceding claims, wherein the light source (301) is a LED.

20 8. The illumination system (300) according to any one of the preceding claims, wherein the light source (301) is a laser.

9. The illumination system (300) according to any one of the preceding claims, wherein the light source (301) is a gas discharge lamp.

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10. A display system comprising the illumination system (300) according to any one of the preceding claims.

11. A projection display system comprising the illumination system (300)
30 according to any one of claims 1-9.

12. A direct view LCD system comprising the illumination system (300) according to any one of claims 1-9.